

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous listings of claims in this application.

1-34. (Canceled)

35. (New) A method of producing calcium silicate hydrate comprising contacting calcareous material with siliceous material in an aqueous environment under elevated temperature and pressure and for a sufficient time to permit the calcareous material and siliceous material to react and form calcium silicate hydrate, wherein

prior to said reaction, a predetermined quantity of a suspension agent is added to permit said reaction to take place with little or no agitation.

36. (New) A method as claimed in claim 35 wherein the calcareous material is mixed with water to form a slurry of slaked lime prior to addition of a suspension agent and/or siliceous material.

37. (New) A method as claimed in claim 36 wherein the water used to form the slurry is preheated.

38. (New) A method as claimed in claim 35 wherein the suspension agent is mixed with water to form a slurry prior to being mixed with a calcareous and/or siliceous material.

39. (New) A method as claimed in claim 38 wherein the water used to form the slurry is preheated..

40. (New) A method as claimed in claim 35 wherein the suspension agent is a gel forming agent adapted to form a gel upon contact with the calcareous material, siliceous material and/or water.

41. (New) A method as claimed in claim 40 wherein the gel forming agent is a source of amorphous silica.

42. (New) A method as claimed in claim 40 wherein the gel forming agent is selected from the group consisting of diatomaceous earth, clay, silica fume, cellulose pulp or mixtures thereof.

43. (New) A method as claimed in claim 40 wherein the gel forming agent is combined with a slaked lime slurry, optionally further diluted with water, and allowed to react to form a gel, and subsequently combined with the siliceous material and subjected to elevated temperature and pressure to form calcium silicate hydrate.

44. (New) A method as claimed in claim 35 wherein the siliceous material is combined with the calcareous material and suspension agent in a dry powdered state or as a slurry.

45. (New) A method as claimed in claim 40 wherein the siliceous material is mixed into the gel to provide an essentially homogeneous reactive mixture.

46. (New) A calcium silicate hydrate with a post reaction solids content of greater than 35%wt

47. (New) A calcium silicate hydrate as claimed in claim 46 having a post reaction solids content between 35% to 60%wt.

48. (New) A calcium silicate hydrate as claimed in claim 46 wherein about stoichiometric quantities of calcareous material and siliceous material are reacted to form the calcium silicate hydrate such that the resultant product has a bulk density of around 120 to 200 kg/m³.

49. (New) A calcium silicate hydrate as claimed in claim 46 wherein excess silica is added to the calcareous and siliceous reactants such that the resultant product has a bulk density of up to about 380 to 460 kg/m³.

50. (New) A calcium silicate hydrate with a post reaction solids content of greater than 35%wt and produced according to the method of claim 35 .

51. (New) A method of manufacturing calcium silicate hydrate comprising using a gel, said gel being formed by combining a calcareous slurry with a gel forming agent over a predetermined temperature/pressure profile, the gel having a consistency such that upon combination with a siliceous material, the siliceous material is suspended therein for subsequent reaction with the gel at elevated pressure and temperature to form calcium silicate hydrate, without the need for mixing or agitation.

52. (New) A method as claimed in claim 51 wherein the gel forming agent is a source of amorphous silica.

53. (New) A method as claimed in claim 51 wherein the gel forming agent is selected from the group consisting of diatomaceous earth, clay, silica fume, cellulose pulp or mixtures thereof.

54. (New) A method as claimed in claim 51 wherein the siliceous material is mixed into the gel to provide an essentially homogeneous reactive mixture.

55. (New) A method as claimed in claim 51 wherein the siliceous material is combined with the gel in a dry powdered state or as a slurry.

56. (New) A reactable matrix comprising a calcareous gel with a homogeneous distribution of siliceous material suspended therethrough and adapted to be subjected to elevated temperature and pressure and permit reaction between the calcareous gel and siliceous material to form calcium silicate hydrate.

57. (New) A reactable matrix as claimed in claim 56 wherein the calcareous gel is produced by combining a calcareous material with a gel forming agent, optionally diluted with water and allowed to react to form a gel.

58. (New) A reactable matrix as claimed in claim 56 wherein the siliceous material is mixed into the gel to provide an essentially homogeneous reactable matrix.

59. (New) A reactable matrix as claimed in claim 56 wherein the siliceous material is combined with a calcareous gel in a dry powdered state or as a slurry.

60. (New) A method of manufacturing calcium silicate hydrate comprising using a suspension agent, the suspension agent being combined in sufficient quantities with a calcareous material and a siliceous material to maintain said components in suspension and thereby permit reaction between said materials without the need for mixing or agitation.

61. (New) A method as claimed in claim 60 wherein the calcareous material is mixed with water to form a slurry of slaked lime prior to addition of a suspension agent and/or siliceous material.

62. (New) A method as claimed in claim 61 wherein the water used to form the slurry is preheated.

63. (New) A method as claimed in claim 60 wherein the suspension agent is mixed with water to form a slurry prior to being mixed with a calcareous and/or siliceous material.

64. (New) A method as claimed in claim 63 wherein the water used to form the slurry is preheated.

65. (New) A method as claimed in claim 60 wherein the suspension agent is a gel forming agent adapted to form a gel upon contact with the calcareous material, siliceous material and/or water.

66. (New) A method as claimed in claim 65 wherein the gel forming agent is a source of amorphous silica.

67. (New) A method as claimed in claim 65 wherein the gel forming agent is selected from the group consisting of diatomaceous earth, clay, silica fume, cellulose pulp or mixtures thereof.

68. (New) A method as claimed in claim 65 wherein the gel forming agent is combined with a slaked lime slurry, optionally further diluted with water, and allowed to react to form a gel which is subsequently combined with the siliceous material and subjected to elevated temperature and pressure to form calcium silicate hydrate.

69. (New) A method as claimed in claim 60 to wherein the siliceous material is combined with a calcareous material and suspension agent in a dry powdered state or as a slurry.

70. (New) A method as claimed in claim 65 wherein the siliceous material is mixed into the gel to provide an essentially homogeneous reactive mixture.